is identified by the identifier (ID) of the associated Anchor Section and the start and end offsets for the location on that Anchor Section or, if the location spans several Anchor Sections, by a collection of such information. In other words, a location is specified in terms of a dynamic segmentation of the Anchor Sections.

[0051] **Anchor Section.** An Anchor Section is the core linear feature used as the basis for the Anchor LRM. In the context of the exemplary embodiment, an Anchor Section represents a physical section of a roadway, typically a section that connects two intersections. In other geographic information systems, the equivalent element would be called a "link" or a like equivalent term. Anchor Sections refers to the definition herein and equivalents in other systems.

[0052] **Division Section.** A Division Section typically refers to an Anchor Section or road section and is a representation of a physical, linear section of a division of a roadway. For instance, a road may have more than one lane, or contain a median or a shoulder (i.e., multiple divisions). The lanes, median and shoulder all travel parallel and serve to make up the entire road section, however, they may have different attributes (e.g. pavement type), and it is convenient to be able to access information on multiple divisions of the same length of road.

[0053] **Traversal.** A Traversal represents a road or a collection of road divisions.

[0054] **Intersect.** An Intersect represents an intersection between roads.

[0055] **Lanes.** Lanes represent individual lanes in a roadway.

[0056] Milepost. A Milepost provides a second linear referencing method along some Traversals.

[0057] The system and method described herein provide a solution to the requirement to establish a TIS network data model that will incorporate a robust and flexible linear referencing system (LRS). The core of the TIS network data model is a road network based linear referencing method (LRM), the Anchor LRM, that provides a unique location reference that is used across all TIS applications. Road attribute data is stored by associating each attribute with locations specified in terms of this LRM. Attributes of a road (road attribute data) include things such as pavement type, whether or not there is a median and its type, number of lanes, street name, etc. Project locations are specified in terms of the Anchor LRM. Most spatial queries are performed by first determining the portions of the Anchor LRM contained in a spatial area, then reporting on the attributes of these Anchor LRM "sections." Conversion tables enable TIS software to interpret a location expressed in terms of an existing reference systems (e.g., GDOT currently uses RCLink and milepoint as reference systems). In the context of the GDOT TIS, RCLink numbers are used to reference locations. An RCLink number is a unique ten digit code used to tag city, county and state maintained roads. This RCLink number links the arcs in the database to GDOT's RCFile (road network database), which holds the related road data. A route system was then built on top of the arcs, based on the RCLink number. Spatial data is stored for each LRM section, enabling TIS to integrate GIS maps (i.e., in displays and reports) with other TIS functions. Intermodal, or multi-modal, relationships are

supported both (a) by associating an intermodal point to a position in the LRM and (b) through different layers displayed in GIS-enabled applications.

[0058] Referring now to the drawings, and in particular to Figure 1, the general structure of the core module data archive for the exemplary TIS is shown. The core module (CM) maintains not only the current version of all TIS data 10, but also maintains a historical data archive 11 that can (a) produce reports using a query/report application 12 that compare historical and current data (e.g., traffic counts by calendar year) and (b) reproduce historical reports. Moreover, certain historical data will also be migrated to a database 13, the query database, that is optimized for historical queries.

[0059] The current TIS database 10 contains the current version of any data, both spatial and relational, maintained within TIS. Associated with each data item in the current TIS data is a birth date column that specifies when this data item first became applicable. Much of the user interaction with the TIS data will be through the current TIS database 10, though the TIS software will automatically route any data queries that require historical information to historical TIS database 11.

[0060] The historical TIS database 11 contains archived versions of all TIS data, both spatial and relational. The structure of the historical TIS data is identical to that of data in the current TIS database 10, except that a death date (as well as the aforementioned birth date) is associated with each data item. A data update application 14 maintains the TIS data. Changes are written to the current TIS database 10, which triggers an update to the historical TIS database 11 (i.e., assign a